

**REMARKS**

**INTRODUCTION:**

In accordance with the foregoing, claims 1, 5, 9 and 15 have been amended. No new matter is being presented, and approval and entry are respectfully requested.

Claims 1-16 are pending and under consideration. Reconsideration is respectfully requested.

**ENTRY OF RESPONSE UNDER 37 C.F.R. §1.116:**

Applicants request entry of this Rule 116 Response and Request for Reconsideration because:

- (a) it is believed that the amendments of claims 1, 5, 9 and 15 put this application into condition for allowance as suggested by the Examiner;
- (b) the amendments were not earlier presented because the Applicants believed in good faith that the cited prior art did not disclose the present invention as previously claimed;
- (c) the amendments of claims 1, 5, 9, and 15 should not entail any further search by the Examiner since no new features are being added or no new issues are being raised; and/or
- (d) the amendments do not significantly alter the scope of the claims and place the application at least into a better form for appeal. No new features or new issues are being raised.

The Manual of Patent Examining Procedures sets forth in §714.12 that "[a]ny amendment that would place the case either in condition for allowance or in better form for appeal may be entered." ( Underlining added for emphasis) Moreover, §714.13 sets forth that "[t]he Proposed Amendment should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified." The Manual of Patent Examining Procedures further articulates that the reason for any non-entry should be explained expressly in the Advisory Action.

**OBJECTIONS TO THE DRAWINGS:**

In the Office Action, at pages 2-3, the drawings were objected to.

It is respectfully submitted that paragraph [0018] of the specification recites that the oxidative catalyst filter is indicated by reference numeral 2:

[0018] In addition, the exhaust system comprises a heating coil 1, which is installed inside the exhaust line 4, generally near the fixation unit 6, to heat/combust air being

discharged through the exhaust line 4 to combust impurities contained in the air, and an oxidative catalyst filter 2 to filter and deodorize the impurities. (emphasis added)

In view of these objections, paragraph [0026] was amended to show more clearly that the oxidative catalyst filter is indicated as reference numeral 2:

[0026] The oxidative catalyst filter 2 of an embodiment of the present invention may be a metallic honeycomb carrier coated with a catalyst mixture or a non-woven heating mat coated with a catalyst mixture.

As is clear from amended paragraph [0026], the oxidative catalyst filter 2, shown in the FIGURE, may be a metallic honeycomb carrier coated with a catalyst mixture or a non-woven heating mat coated with a catalyst mixture.

The oxidative catalyst filter 2 is shown in the FIGURE as:



Under 37 CFR 1.81(b), "Drawings may include illustrations which facilitate an understanding of the invention (for example, flow sheets in cases of processes, and diagrammatic views)" (emphasis added). It is respectfully submitted that the above illustration of the oxidative catalyst filter 2 facilitates the understanding of the oxidative catalyst filter 2, which may be a metallic honeycomb carrier coated with a catalyst mixture or a non-woven heating mat coated with a catalyst mixture.

Hence, it is respectfully submitted that, in view of the clarification of paragraph [0026] of the specification, no change in the FIGURE is needed. Therefore, the outstanding drawing objections should be resolved. Thus, reconsideration and withdrawal of the outstanding objections to the drawings are respectfully requested.

#### **OBJECTION TO THE TITLE:**

In the Office Action, at page 2, the title was objected to as not being descriptive. In view of the proposed amended title set forth above, the outstanding objection to the title should be resolved.

#### **CHANGES TO THE SPECIFICATION:**

The specification has been reviewed in response to this Office Action. Changes have been made to the specification only to place it in preferred and better U.S. form for issuance and to resolve the Examiner's objections raised in the Office Action. No new matter has been added.

Paragraph [0026] has been amended for clarity (see above).

That is, paragraph [0026] has been amended to add reference numeral "2," based on paragraph [0018] of the specification.

Thus, the specification is now submitted to be in form for allowance.

#### REJECTION UNDER 35 U.S.C. §102:

A. In the Office Action, at pages 3-4, claims 1, 3-5, and 7-11 were rejected under 35 U.S.C. §102(b) as being anticipated by Kurotori et al. (USPN 4,415,533; hereafter, Kurotori). This rejection is traversed and reconsideration is requested.

Independent claims 1, 5, 9 and 25 have been amended for clarity. That is, the terminology "to ignite" has been amended to recite ---and igniting--- in claims 1, 5 and 9. Claim 15 has been amended in similar fashion.

The Examiner submits: "The temperature range of 150 to 350°C, col. 4, line 11, completely overlaps that used by Applicant, and must be capable of igniting impurities in the air." It is respectfully submitted that a same temperature range is not sufficient to conclude that Kurotori is capable of igniting impurities in the air. As those skilled in the art recognize, the presence of the oxidative catalyst filter 2 in the present claimed invention affects a rate of reaction by **lowering an activation energy required** for oxidative degradation of an odor ingredient **using a catalyst** (see paragraph [0021]). That is, a lower energy is required for ignition. Hence, the Examiner may not conclude that cited prior art using a same temperature range as the temperature range of the present claimed invention behaves in a same fashion as the oxidative catalyst filter of the present claimed invention.

In addition, Applicants respectfully submit that independent claims 1, 5 and 9 of the present invention have been amended to change "to ignite" to ---and igniting--- for clarity. Thus,

Anticipation requires a lack of novelty of the invention as claimed. The invention must have been known to the art in the detail of the claim; that is, all of the elements and limitations of the claim must be shown in a single prior reference, arranged as in the claim. See C.R. Bard, Inc. v. M3 Systems, Inc., 157 F.3d 1340, 1349, 48 USPQ2d 1225, 1229-30 (Fed. Cir. 1998); Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Kurotori's independent claims 1, 7 and 9 are set forth below:

1. A process for treating an odorous exhaust gas which is generated during an electrophotography process, which comprises: forwarding an electrophotographic copy material bearing developer thereon through a heating zone and therein heating said copy material by a heater to dry or fix said developer on said copy material; contacting said

odorous exhaust gas in said heating zone with a heated oxidation catalyst effective for converting said odorous exhaust gas to a substantially odorless gas, and simultaneously directly heating said oxidation catalyst with at least a portion of the heat supplied by said heater so that said heater is employed for both drying or fixing the developer and for heating said catalyst. (emphasis added)

7. A process for treating an odorous exhaust gas which is generated during an electrophotography process, which comprises: moving an electrophotographic copy sheet bearing developer thereon across the surface of an internally heated plate located within an enclosure for containing said exhaust gas, said plate having internal heating means therein and comprising at least one porous, honeycomb section containing an oxidation catalyst, and thereby heating said copy sheet to dry or fix said developer thereon and simultaneously directly heating said oxidation catalyst by said internal heating means to a temperature at which said catalyst is effective for converting said odorous exhaust gas to a substantially odorless gas, and drawing said odorous exhaust gas through said porous honeycomb section of said plate to contact said odorous exhaust gas with said heated catalyst whereby to convert said odorous exhaust gas to a substantially odorless gas and then discharging said substantially odorless gas from said enclosure. (emphasis added)

9. An apparatus for treating an odorous exhaust gas which is generated during an electrophotography process, which comprises: means defining an enclosed heating zone containing a bed of oxidation catalyst and a heater in direct heat exchange relationship with said oxidation catalyst bed, said oxidation catalyst being effective, when heated, to convert said odorous exhaust gas to a substantially odorless gas, and means for forwarding an electrophotographic copy material bearing developer thereon through said heating zone so that said copy material is heated by said heater to dry or fix said developer on said copy material and said heater is simultaneously effective to directly heat said catalyst bed. (emphasis added)

It is respectfully submitted that the terminology "contacting said odorous exhaust gas in said heating zone with a heated oxidation catalyst effective for converting said odorous exhaust gas to a substantially odorless gas" in claim 1 of Kurotori, the terminology "directly heating said oxidation catalyst by said internal heating means to a temperature at which said catalyst is effective for converting said odorous exhaust gas to a substantially odorless gas" in claim 7 of Kurotori, and the terminology "said oxidation catalyst being effective, when heated, to convert said odorous exhaust gas to a substantially odorless gas" in claim 9 of Kurotori recite a conversion using a catalyst, not igniting impurities, as is recited in amended independent claims 1, 1, 5 and 9 of the present invention. Igniting is implementing combustion, i.e., exothermic reaction of a substance with an oxidizer, generally accompanied by flames and/or glowing and/or smoke emission.

The Examiner appears to be asserting that a temperature range inherently results in an ignition of impurities since Kurotori does not explicitly describe such a property or the specific reaction by which the impurities are ignited. Ignition is submitted to be combustion of impurities with oxygen.

Generally, where the Examiner relies upon the theory of inherency, the Examiner is required to provide extrinsic evidence that the features are necessarily present in the reference.

As noted in MPEP 2112:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted) (The claims were drawn to a disposable diaper having three fastening elements. The reference disclosed two fastening elements that could perform the same function as the three fastening elements in the claims. The court construed the claims to require three separate elements and held that the reference did not disclose a separate third fastening element, either expressly or inherently.). >Also, "[a]n invitation to investigate is not an inherent disclosure" where a prior art reference "discloses no more than a broad genus of potential applications of its discoveries." *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1367, 71 USPQ2d 1081, 1091 (Fed. Cir. 2004) (explaining that "[a] prior art reference that discloses a genus still does not inherently disclose all species within that broad category" but must be examined to see if a disclosure of the claimed species has been made or whether the prior art reference merely invites further experimentation to find the species. (emphasis in original)

Thus, in order for the burden to shift to the applicants, the Examiner needs to provide sufficient evidence of record as to a necessary ignition result of "contacting said odorous exhaust gas in said heating zone with a heated oxidation catalyst effective for converting said odorous exhaust gas to a substantially odorless gas" in claim 1 of Kurotori, "directly heating said oxidation catalyst by said internal heating means to a temperature at which said catalyst is effective for converting said odorous exhaust gas to a substantially odorless gas" in claim 7 of Kurotori, and "said oxidation catalyst being effective, when heated, to convert said odorous exhaust gas to a substantially odorless gas" in claim 9 of Kurotori, so as to afford the applicants an opportunity to examine and rebut any such evidence. Without such evidence, the Examiner is relying on conjecture and has not established a prima facie case for anticipation based upon a theory of inherency.

Here, clearly, Kurotori does not recite igniting the impurities. The Examiner merely submits that the temperature range 150 to 350°C, col. 4, line 11, "must be capable of igniting impurities in the air" (emphasis added). It is respectfully submitted that **Kurotori does not recite igniting the impurities**. Kurotori discloses, col. 2, lines 64-68, "an odorous solvent gas generated within a wet type electrophotographic machine **is decomposed by means of a catalyst** into an odorless substance and thus high-speed copying can be effected without causing any odious smell." In addition, Kurotori discloses, col. 3, lines 23-32, "In other words, the

process according to the present invention is characterized in that an odorous exhaust gas generated in the course of the steps of developing an image on an element being developed by means of a developer, transferring the thus developed image onto a transfer sheet and/or heating a copy material consisting of said element being developed or **said transfer sheet is contacted with a heated oxidation catalyst for oxidizing treatment** and is made odorless" (emphasis added). No ignition is disclosed by Kurotori.

Simply asserting that Kurotori "**must**" be capable of igniting impurities is not sufficient to show that Kurotori **does** in fact ignite impurities.

Hence, Applicants respectfully submit that Kurotori discloses using a catalyst to convert odorous exhaust gas to a substantially odorless gas. However, Kurotori does not recite "igniting impurities," as is recited by amended independent claims 1, 5 and 9 of the present invention. Thus, all of the elements and limitations of the independent claims of the present invention are not shown in a single prior reference (Kurotori), arranged as in the claim, and Kurotori does not anticipate amended independent claims 1, 5 and 9 of the present invention.

Hence, it is respectfully submitted that independent claims 1, 5 and 9 of the present invention are not anticipated under 35 U.S.C. §102(b) by Kurotori et al. (USPN 4,415,533). Since claims 3-4, 7, 8, and 10-11 depend from independent claims 1, 5 and 9, respectively, claims 3-4, 7, 8, and 10-11 are not anticipated under 35 U.S.C. §102(b) by Kurotori et al. (USPN 4,415,533) for at least the reasons that independent claims 1, 5 and 9 are not anticipated under 35 U.S.C. §102(b) by Kurotori et al. (USPN 4,415,533).

B. In the Office Action, at pages 4-5, claims 1, 2, 4-6, and 8-12 were rejected under 35 U.S.C. §102(b) as being anticipated by Kim (USPN 6,041,201; hereafter, Kim). This rejection is traversed and reconsideration is requested.

Independent claims 1, 5, and 9 have been amended for clarity.

Here again, the Examiner is submitting that using "a heating coil to heat the air to be discharged through the exhaust line to **thermally decompose**, col.3, line 1, **reads on ignite, impurities** contained in the air" (emphasis added). The terminology "igniting impurities," recited in independent claims 1, 5, and 9 of the present invention, is submitted to be different from "thermally decomposing," as set forth more fully below.

"Decomposition" is defined in General Chemistry Online!, a copy of which is included herewith, as "A reaction in which a compound is broken down into simpler compounds or elements. Compounds sometimes decompose if heated strongly or if subjected to a strong electric current (electrolysis)."

In contrast, "igniting impurities" refers to initiating combustion (oxidation) of the impurities.

Therefore, it is respectfully submitted that the terms "decomposing" and "igniting" have different meanings. Since the invention must have been known to the art in the detail of the claim; that is, all of the elements and limitations of the claim must be shown in a single prior reference, arranged as in the claim (see above), the invention of Kim is submitted to be different from the present claimed invention.

Thus, it is respectfully submitted that independent claims 1, 5 and 9 of the present invention are not anticipated under 35 U.S.C. §102(b) by Kim (USPN 6,041,201). Since claims 2, 4, 6, 8, and 10-12 depend from independent claims 1, 5 and 9, respectively, claims 2, 4, 6, 8, and 10-12 are not anticipated under 35 U.S.C. §102(b) by Kim (USPN 6,041,201) for at least the reasons that independent claims 1, 5 and 9 are not anticipated under 35 U.S.C. §102(b) by Kim (USPN 6,041,201).

#### **REJECTION UNDER 35 U.S.C. §103:**

In the Office Action, at pages 5-6, claims 3, 7, 13 and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kim (USPN 6,041,201; hereafter, Kim) in view of Yamamoto et al. (USPN 6,535,703; hereafter, Yamamoto). The reasons for the rejection are set forth in the Office Action and therefore not repeated. The rejection is traversed and reconsideration is requested.

In In re Dembiczak, the court noted that:

Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999). We "cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." In re Fine, 837 F.2d 1071, 1075, 5 USPQ2d 1780, 1783 (Fed. Cir. 1988).

In Ruiz and Foundation v. A.B. Chance Company, 69 USPQ2d 1690 (CAFC January 29, 2004), the court recited:

In making the assessment of differences, section 103 specifically requires consideration of the claimed invention "as a whole." Inventions typically are new combinations of existing principles or features. Envtl. Designs, Ltd. v. Union Oil Co., 713 F.2d 693, 698 (Fed. Cir. 1983) (noting that "virtually all [inventions] are combinations of old elements."). The "as a whole" instruction in title 35 prevents evaluation of the invention part by part. Without this important requirement, an obviousness assessment might break an invention into its component parts (A + B + C), then find a prior art reference containing A, another containing B, and another containing C, and on that basis alone declare the invention obvious. This

form of hindsight reasoning, using the invention as a roadmap to find its prior art components, would discount the value of combining various existing features or principles in a new way to achieve a new result – often the very definition of invention.

Section 103 precludes this hindsight discounting of the value of new combinations by requiring assessment of the invention as a whole. This court has provided further assurance of an “as a whole” assessment of the invention under § 103 by requiring a showing that an artisan of ordinary skill in the art at the time of invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention, would select the various elements from the prior art and combine them in the claimed manner. In other words, the examiner or court must show some suggestion or motivation, before the invention itself, to make the new combination. See In re Rouffet, 149 F.3d 1350, 1355-56 (Fed. Cir. 1998).

It is respectfully submitted that there is no teaching or suggestion of combining Kim and Yamamoto, but rather the Examiner is using the present invention as a blueprint, i.e., is using Kim as a base, and is simply seeking missing elements in another patent (here, Yamamoto).

The Examiner admits that Kim does not disclose that the filter is a metallic honeycomb carrier or a non-woven heating mat. Yamamoto teaches using a filter with a honeycomb structure. However, neither Kim nor Yamamoto discloses igniting the impurities, as is recited in independent claims 1, 5 and 9 of the present claimed invention (see above). In contrast to “igniting” recited by claims 1, 5 and 9 of the present invention, Kim teaches “decomposing” (see above), and Yamamoto recites “using “a particulate matter which is capable of absorbing or adsorbing vapor of the liquid carrier and which is held in the plurality of passages.” No igniting of the impurities occurs in Kim or Yamamoto.

Applicants disagree with the Examiner’s contention that Kim discloses the method and apparatus above but does not disclose that the filter is a metallic honeycomb carrier or a non-woven heating mat.. As noted above, Kim does not recite, teach or suggest “igniting impurities,” which is an element of the present claimed invention.

Hence, even if combined, Kim and Yamamoto do not disclose independent claims 1, 5 and/or 9 of the present invention.

Thus, independent claims 1, 5, 9 and 15 are submitted to be patentable under 35 U.S.C. §103(a) over Kim (USPN 6,041,201) in view of Yamamoto et al. (USPN 6,535,703). Since claims 3, 7, 13 and 14 (and 16) depend from claims 1, 5, 9, and 15 respectively, claims 3, 7, 13 and 14 (and 16) are submitted to be patentable under 35 U.S.C. §103(a) over Kim (USPN 6,041,201) in view of Yamamoto et al. (USPN 6,535,703) for at least the reasons that claims 1, 5, 9 and 15 are submitted to be patentable under 35 U.S.C. §103(a) over Kim (USPN 6,041,201) in view of Yamamoto et al. (USPN 6,535,703).

#### **RESPONSE TO EXAMINER'S ARGUMENTS:**

In the Office Action, at pages 6-8, the Examiner provided his arguments with respect to



Applicants' arguments filed September 2, 2005. These arguments are traversed, and reconsideration is respectfully requested.

With respect to the title, the title has been amended as suggested by the Examiner.

With respect to the objection to the drawings, it is respectfully submitted that, for example, the elements of independent claim 1 are an exhaust line 4, at least one exhaust fan 3, a heating coil 1, and an oxidative catalyst filter 2, all of which are illustrated in the FIGURE. As is clear to those skilled in the art, the illustration of the oxidative catalyst filter 2, as noted above, is intended to represent an oxidative catalyst filter which may be a metallic honeycomb carrier coated with a catalyst mixture or a non-woven heating mat coated with a catalyst mixture. That is, the FIGURE is not a photograph, but rather is an illustrative representation of the embodiments of the oxidative catalyst filter. Hence, it is respectfully submitted that the drawing shows every feature of the invention specified in the claims.

Applicants apologize if the references for Slimfold Mfg. Co. v. Kinkead Indus. Inc., 810 F.2d 1113, 1118, 1 USPQ2d 1563, 1566 (Fed. Cir. 1987), and also, Netword LLC v. Centraal Corp., 58 USPQ2d 1079 (CAFC March 14, 2001) were not clear. Applicants checked the reference and found that in 58 USPQ2d, on page 1079, Netword LLC v. Centraal Corp., recites:

Netword's argument that the district improperly limited the scope of claim 1 by importing the caching and pulling functions from the specification misperceives the role of "claim construction" in infringement analysis. The role is neither to limit nor to broaden the claims, but to define, as a matter of law, the invention that has been patented. The claims are always construed in light of the specification, of which they are a part. See Slimfold Mfg. Co. v. Kinkead Indus., Inc. 810 F.2d 1113, 1118 1 USPQ2d 1563, 1566 (Fed. Cir. 1987).

Hence, the page cite is submitted to be correct (although it appears that "Netword" was incorrectly spelled as "Network"), and it is submitted that the claims are always construed in light of the specification. The purpose of this cite was to show that the specification, paragraph [0026], recites a further feature that the oxidative catalyst filter (illustrated in the FIGURE as numeral 2) is one of: a metallic honeycomb carrier coated with a catalyst mixture and a non-woven heating mat coated with a catalyst mixture, as recited by claims 3, 7 and 13. Hence, the oxidative catalyst filter, which may be implemented as a metallic honeycomb carrier coated with a catalyst mixture or a non-woven heating mat coated with a catalyst mixture, is supported by the specification, e.g., in paragraph [0026], wherein it states: "The oxidative catalyst filter of an embodiment of the present invention may be a metallic honeycomb carrier coated with a catalyst mixture or a non-woven heating mat coated with a catalyst mixture."

The independent claims have been amended for clarity to recite "igniting impurities."

Thus, it is clear that Kim and/or Yamamoto do not recite the present invention. The Examiner's statement that "a heating temperature in excess of 300°C serves no additional purpose" is not quite correct. The actual statement on page 4, paragraph [0020] is "The heating temperature of the heating coil may be in the range of 150 to 300°C. If the heating temperature is less than 150°C, it is difficult to obtain a sufficient heating effect. On the other hand, **even if the heating temperature exceeds 300°C, an additional heating effect is not obtained**" (emphasis added). It is respectfully submitted that the terminology "ignited" (as recited in the independent claims of the present claimed invention) is not used, taught or suggested by Kurotori. "Heating" and "igniting" are two different processes.

To address the Examiner's concerns with the language "to ignite impurities in the air," Applicants have amended independent claim 1, and the other independent claims similarly, to recite "and igniting." Thus, it is respectfully submitted that the amended independent claims 1, 5, 9 and 15 are not set forth in functional language, and the prior art structure cited does not perform "igniting."

It is respectfully submitted that the Examiner's contention that, because Kurotori discloses a same temperature range of the Applicant, it must be capable of igniting impurities in the air, is not an appropriate interpretation of the claims because it appears to be an inherency argument, and as recited in MPEP 2112 (see above): "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. **Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.**'" (emphasis added) *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). There is no evidence presented to show that ignition takes place in Kurotori.

As noted above, the meanings of "thermally decomposed" and "ignite" are different. Hence, Kim does not disclose the present claimed invention.

As noted above, the Examiner's concern that "to ignite impurities in the air" is functional language has been addressed by changing "to ignite" to ---and igniting---.

It is respectfully submitted that a same temperature range is not sufficient to conclude that Kim is capable of igniting impurities in the air. As those skilled in the art recognize, the presence of the oxidative catalyst filter 2 in the present claimed invention affects a rate of reaction by lowering an activation energy required for oxidative degradation of an odor ingredient

using a catalyst (see paragraph [0021]). Hence, the Examiner may not conclude that cited prior art using a same temperature range as the temperature range of the present claimed invention behave in a same fashion as the oxidative catalyst filter of the present claimed invention.

It is respectfully submitted that Applicants did indeed point out that neither Kim nor Yamamoto recites the ignition of the impurities (direct combustion), as is recited by the independent claims of the present invention:

“It is respectfully submitted that neither Kim nor Yamamoto disclose utilizing the combination of a direct combustion method using the heating coil and a catalytic oxidation method using the oxidative catalyst filter, as recited in paragraph [0019] of the specification (see recitation above). Thus, independent claims 1, 5 and 9 are submitted to be patentable under 35 U.S.C. §103(a) over Kim (USPN 6,041,201) in view of Yamamoto et al. (USPN 6,535,703), alone or in combination.” (emphasis added)

Hence, it is respectfully submitted that neither Kim nor Yamamoto recites the limitation of “igniting impurities” (direct combustion) of the present claimed invention (see amended independent claims 1, 5, 9 and 15). Thus, it is respectfully submitted that the independent claims 1, 5, 9, and 15 of the present invention are non-obvious in view of Kim and/or Yamamoto, alone or in combination. Since dependent claims 2-4, 6-8, 10-14 and 16 depend from independent claims 1, 5, 9, and 15, claims 2-4, 6-8, 10-14 and 16 are non-obvious in view of Kim and/or Yamamoto, alone or in combination, for at least the reasons that claims 1, 5, 9, and 15 are non-obvious in view of Kim and/or Yamamoto, alone or in combination.

#### **CONCLUSION:**

In accordance with the foregoing, it is respectfully submitted that all outstanding objections and rejections have been overcome and/or rendered moot, and further, that all pending claims patentably distinguish over the prior art. Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited. At a minimum, this Amendment should be entered at least for purposes of Appeal as it either clarifies and/or narrows the issues for consideration by the Board.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited and possibly concluded by the Examiner contacting the undersigned attorney for a telephone interview to discuss any such remaining issues.

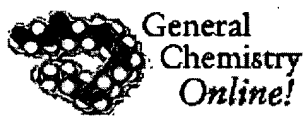
If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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# Glossary: D

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ABCDEF GHIJKLMNOPQRSTUVWXYZ

**D-, D-isomer.** Compare with L-<sup>±</sup>.


Prefix used to designate a dextrorotatory<sup>±</sup> enantiomer<sup>±</sup>.

**Dalton's law.** Dalton's law of partial pressure.


The total pressure exerted by a mixture of gases is the sum of the pressures that each gas would exert if it were alone. For example, if dry oxygen gas at 713 torr is saturated with water vapor at 25 torr, the pressure of the wet gas is 738 torr.

**Debye.**  (D) Debye unit. Compare with dipole moment<sup>±</sup>.

A common non-SI<sup>±</sup> unit of dipole moment<sup>±</sup>, named for Dutch physical chemist Peter Debye. A charge separation equal to one electron charge placed one Ångström<sup>±</sup> unit apart has a dipole moment of 4.8 D. In SI units, 1 D =  $3.338 \times 10^{-30}$  coulomb<sup>±</sup> meters.

**decomposition.**  decompose; decomposable; decomposition reaction. Compare with synthesis<sup>±</sup>.

A reaction in which a compound is broken down into simpler compounds or elements. Compounds sometimes decompose if heated strongly or if subjected to a strong electric current<sup>±</sup> (electrolysis<sup>±</sup>).

**degenerate.**  degenerate orbital.

A set of orbitals are said to be degenerate if they all have the same energy. This degeneracy can sometimes be "lifted" by external electric or magnetic fields.

**deliquescent.**  deliquesce; deliquescence.

Deliquescent compounds absorb so much moisture from the air that they dissolve. Examples are calcium chloride and sodium hydroxide.

**denature.**  denatured; denaturation.

1. A loss of chemical function, usually due to some heat or chemically-induced structural change. For example, heating a protein causes it to lose its three dimensional form and it no longer functions correctly.

**density.**  (p,d) Compare with specific gravity<sup>±</sup>.

Mass of a substance per unit volume. Saying "the density of mercury is 13.55 g/cm<sup>3</sup>" is the same as saying "the mass of exactly 1 cm<sup>3</sup> of mercury is 13.55 g".

**density functional.**  density functional theory; density functional model.

A model that describes the electronic structure of an atom or molecule by approximating the total energy as a function of electron density.

**dependent variable.** Compare with independent variable<sup>±</sup>.

A dependent variable<sup>±</sup> changes in response to changes in independent variables<sup>±</sup>. For example, in an experiment where the vapor pressure<sup>±</sup> of a liquid is measured at several different temperatures, temperature is the independent variable and vapor pressure is the